
TECHNOLOGY & INNOVATION

1928	<i>Steamboat Willie</i> premieres in November, marking the debut of both Mickey Mouse and Disney's use of synchronized sound.	1954	"Disneyland" TV series debuts in October.
1932	<i>Flowers and Trees</i> debuts Technicolor's three-strip process and wins an Academy Award.	1955	Disneyland Park opens; one of the early attractions is <i>Circarama</i> .
1937	<i>The Old Mill</i> is the first Disney animated short to use the Multiplane Camera and wins an Academy Award®.	1963	<i>Walt Disney's Enchanted Tiki Room</i> opens, using Audio-Animatronics®.
		1965	<i>Great Moments with Mr. Lincoln</i> premieres at Disneyland after a successful debut at the 1964/65 World's Fair in New York.

Walt Disney was an innovator who continually used new technology to enhance and advance the art of storytelling. His unshakable faith in the future drove him to be among the earliest to apply new technologies in developing animation, live-action films, special exhibits, theme park planning, and more. Here are just a few notable examples from Walt's legendary career.

Synchronized sound

Walt convinced distributors to book his new star Mickey Mouse by partnering him with the talking-picture craze that was sweeping the industry in the late 1920s. However, matching sound to action was a new technical challenge. Walt solved the problem with a visual "metronome," a bouncing ball printed on the workprint of the film itself, which allowed the orchestra conductor to follow the exact rhythm built into the picture. Here's how Walt recounted part of the experience of producing *Steamboat Willie*, the first Disney cartoon with synchronized sound:

"I had hired a full New York orchestra with a famous director to do the recording. ... I thought 15 men would be enough, but the director insisted on having 30 men. ... The upshot was that I had to borrow on my automobile, and [my brother and business partner] Roy and I had to mortgage our homes to cover the cost of the first synchronization of *Steamboat Willie*. And when it was finished, the picture wouldn't synchronize with the sound, and we had to do it all over."

Despite the costs and the setbacks, the result was a picture and a soundtrack that meshed perfectly.

Color

In 1932, Walt partnered with Technicolor for the exclusive use of their three-strip process, which brought a complete range of rich colors to the screen. Here's what Walt later said about this long-awaited breakthrough.

"I had always been interested in color, but the color on the film at that time was not too good. And it hadn't met with too much success in the theaters because ... it was a two-color process. Well, you know how if you try to reproduce something in two colors you have to compromise something all the way through. I had a black-and-white picture in the works called *Flowers and Trees* [a Silly Symphony]. But I just felt that color could do so much more for the cartoon medium that it was worth doing over."

Flowers and Trees earned Walt his first Academy Award®. By 1935, all cartoons at The Walt Disney Studios were being filmed in Technicolor.

Depth

The Multiplane Camera crane, introduced in Disney films in 1937, allowed audiences to go beyond the two-dimensional world of most cartoons. As the camera moves down into a scene, it gets closer to and passes some scenic elements while others remain in the background. This movement creates a more realistic illusion of depth—an effect impossible with a normal flat camera table and one that Walt believed was worth the tremendous cost.

“I felt like I had to get a certain feeling of depth; I couldn’t just have the flatness. So I did an experimental cartoon called *The Old Mill* that would give me a chance to develop a way of getting depth into my paintings. And that’s what we now call the Multiplane Camera, where instead of a painting on one plane, we make the painting into several planes and then we can move the camera through the planes, and that gives an illusion of depth.”



Four men operating a Multiplane Camera, 1940 © Disney

Television

As television grew in popularity, many motion picture studios viewed it as a threat. But Walt saw television as an opportunity, a way to go directly to the public. The ABC network agreed to invest in Walt’s theme park in order to acquire a television series from him. Not only did this contract help pay for the Park, but Walt’s series was titled “Disneyland” and centered around the same themes as in the park. Although it would change networks and names, the “Disneyland” TV series would become one of prime time’s longest running programs.

Circarama

For an attraction at Disneyland, Walt wanted to present a film that would surround its audience. Animator and special effects expert Ub Iwerks came up with a system using 11 16mm Cine Kodak Special cameras mounted on a common circular base plate with lenses radiating outward, like spokes in a wheel. *Circarama* became a popular Disneyland attraction with the film *A Tour of the West* (1955). Its theater comprised 11 semicircular screens, arranged in a circle surrounding the audience. Small gaps between the screens allowed the projectors, located behind the screens, to project across the theater to screens on the opposite side, creating a continuous 360-degree movie. Years later, an improved 35mm camera and projection system named “Circle-Vision” was instituted.

Audio-Animatronics

To animate three-dimensional figures, Walt’s Imagineers developed an electronic system called Audio-Animatronics. In this system, which predated “motion-capture” technology, movements were performed by a human actor, recorded as electronic signals on a tape, and then replayed and duplicated by a moving figure. Among the earliest uses of this new system include *Walt Disney’s Enchanted Tiki Room*, a Disneyland attraction starring a chorus of singing birds, tiki figures, and flowers, and *Great Moments with Mr. Lincoln*, a show originally constructed for the 1964 New York World’s Fair featuring a lifelike figure of America’s 16th president.